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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/720,954 | 11/24/2003 | Vladimir Grushin | PE0649USDIV8 | 5280 |
| 23906 | 7590 | 09/28/2005 | EXAMINER | |
| E I DU PONT DE NEMOURS AND COMPANY LEGAL PATENT RECORDS CENTER BARLEY MILL PLAZA 25/1128 4417 LANCASTER PIKE WILMINGTON, DE 19805 | | | RODGERS, COLLEEN E | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2813 | |

DATE MAILED: 09/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/720,954

Applicant(s)

GRUSHIN ET AL.

Examiner

Colleen E. Rodgers

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 19 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 05/18/05
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 June 2005 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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4. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over the article **Dedeian et al.** "A new synthetic route to the preparation of a series of strong photoreducing agents: *fac* tris-ortho-metalated complexes of iridium(III) with substituted 2 phenylpyridines," *Inorganic Chemistry* **1999**, *30*, p. 1685-1687, in view of **Baldo et al** (WO 00/70655).

Dedeian et al discloses substituted phenylpyridine ligands for Ir(III), as shown in Figure 1 on page 1686. Table 1, on the same page, shows the groups with which the phenylpyridine may be substituted. None of adjacent pairs R₁-R₄ and R₅-R₆ are joined. The F, F₃C and MeO functional groups read on the presently claimed compounds. While **Dedeian et al** discloses phenylpyridine ligands rather than the compound of the instant case, it is admitted in applicants' specification that the phenylpyridine and phenylpyrimidine compounds claimed are used to make compounds of the type disclosed in **Dedeian et al**.

"In another embodiment, the present invention is directed to substituted 2-phenylpyridine, phenylpyrimidine, and phenylquinoline precursor compounds **from which the above Ir(III) compounds are made.**" (Specification page 2, lines 29-31, emphasis added.)

Dedeian et al does not locate the substituent groups F, CF₃ and MeO on the phenylpyridine ligands that match those selected locations from the table in the instant case as claimed in claim 19.

Baldo et al, like **Dedeian et al**, discloses substituted phenylpyridine ligands for Ir(III), and teaches that the substituent groups can be located in any position on either ring of the phenylpyridine ligand. **Baldo et al** indicates that moving the functional group beneficially "give[s] different color emission," "different carrier transport" and "alter[s] the emissive properties" (see p. 14-15).

It would have been obvious for one of ordinary skill in the art at the time of invention to locate the substituents of **Dedeian et al** at each specific location on the phenylpyridine ring to

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beneficially effect the emissive properties of the Ir(III) complex, as taught to be beneficial in **Baldo** et al.

5. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over the article **Djurovich** et al. "Ir(III) cyclometalated complexes as efficient phosphorescent emitters in polymer blend and organic LEDs," *Polymer Preprints* **2000**, 41(1), p. 770-771, in view of **Baldo** et al (WO 00/70655).

Djurovich et al discloses the compound *fac* tris-2-(4'-5'-difluorophenyl)pyridine Ir(III) complex, as shown in Figure 1, structure 1. While **Djurovich** et al discloses phenylpyridine complexes rather than the precursor compound of the instant case, it is admitted in applicants' specification that the phenylpyridine and phenylpyrimidine compounds claimed are used to make complexes of the type disclosed in **Djurovich** et al.

"In another embodiment, the present invention is directed to substituted 2-phenylpyridine, phenylpyrimidine, and phenylquinoline precursor compounds **from which the above Ir(III) compounds are made.**" (Specification page 2, lines 29-31, emphasis added.)

Djurovich et al does not locate the substituent groups F and CF₃ on the phenylpyridine ligands that match those selected locations from the table in the instant case as claimed in claim 19.

Baldo et al, like **Dedeian** et al, discloses substituted phenylpyridine ligands for Ir(III), and teaches that the substituent groups can be located in any position on either ring of the phenylpyridine ligand. **Baldo** et al indicates that moving the functional group beneficially "give[s] different color emission," "different carrier transport" and "alter[s] the emissive properties" (see p. 14-15).

It would have been obvious for one of ordinary skill in the art at the time of invention to locate the substituents of **Dedeian** et al at each specific location on the phenylpyridine ring to

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beneficially effect the emissive properties of the Ir(III) complex, as taught to be beneficial in **Baldo et al.**

Response to Arguments

6. Applicant's arguments with respect to compound 2-c have been considered but are moot in view of the cancellation thereof.

7. Applicant's arguments, see Remarks, filed 21 June 2005, with respect to the rejection(s) of compound 2-g under 35 USC § 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of 35 U.S.C. § 103(a) as explained above.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colleen E. Rodgers whose telephone number is (571) 272-0237. The examiner can normally be reached on Monday through Friday, 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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GEORGE ECKERT
PRIMARY EXAMINER